



## LISTENING TO BHAJANS IMPROVES SUSTAINED ATTENTION

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**Abstract**

*Studies of Integrated Approach to Yoga Therapy, Yoga Lifestyle programs tend to study the overall benefits of Yoga lifestyle to patients, measured on various parameters, clinical, or related practical measurements, such as prana energy levels and their imbalances. Effects of important aspects of the program such as relaxation techniques have also been carefully studied, but several parts of the overall program have not yet been individually assessed for their physiological or psycho-physiological effects. Here we report a first study of listening to bhajans, sacred songs, an important part of the program which softens and expands the heart. Measures of sustained attention, using the Six Letter Cancellation Test and Digit Letter Substitution Tests were made on 20 volunteer SVYASA students, before and after 30 minutes spent either listening to bhajans, or reading a spiritual text. All were assessed on both, half with bhajans on the first day and reading on the second, and half the other way round. Results clearly indicated that bhajans improved test scores more than reading, suggesting that, (1) all parts of Yoga lifestyle programs should be assessed, and (2) more detailed research in this particular area should be carried out. That listening to songs should have a distinct alerting influence that is sustained may come as a surprise to many students of psychology.*

**Keywords:** Attention, Sustained attention, Yoga, IAYT, Bhajans

Integrated Approach to Yoga Therapy (IAYT) has been extensively studied both for its fundamental physiological<sup>1-5</sup> and psychological effects<sup>6-10</sup>, and for its efficacy for various medical conditions.<sup>11-15</sup> It is well recognized to benefit asthma<sup>16,17</sup>, cancer<sup>18-21</sup>, diabetes<sup>22,23</sup>, and many other acute and chronic conditions<sup>24, 25</sup>, as well as their causes like stress<sup>26</sup>, and low prana energy levels<sup>27-30</sup>. Extensive studies have also been carried out on the fundamental physiological and psychological effects of important aspects of Patanjali's ashtanga yoga (8 limbs of Yoga) such as Yogasanas (postures)<sup>31</sup>, and pranayama breathing exercises<sup>32-34</sup>. Bespoke relaxation programs such as Self Management of Executive Tension (SMET)<sup>35</sup> have also been measured, both for their psychological benefits for emotional intelligence<sup>36,37</sup>, and in their application to professionals working under excess stress and tension<sup>26,30</sup>. IAYT<sup>38</sup> has many components, early morning Yoga practice at times traditionally held to maximize results; Yoga purification therapies; vigorous and gentle styles of practice of Yoga asanas, various given as appropriate for different needs of students and patients; sessions of listening to traditional hymns and devotional songs (bhajans); simple meditation; informatory lectures on benefits of practice, and Yoga philosophy; specific programs of diet and lifestyle, intended for patients and students to adopt for continuing benefit, since modern medicine fails to supply any such advice, despite its acute need. Not all of these programs have been assessed for their possible specific influences on individual psychology or physiology. For example, diet and lifestyle programs specific to IAYT, have yet to be given an

evidence base.

Listening to sacred songs is another area awaiting proper assessment for its possible benefits. Although, from a purely scientific psychological perspective, listening to sacred songs might not be expected to have any particular benefit, many people report that, as they become familiar with such music, they also become extremely fond of it, and that it inspires them and uplifts their hearts. Dr HR Nagendra, SVYASA's founder and current Chancellor, for example, states that\*<sup>1</sup>, "*Even simple Namavalis serve the purpose of invoking related emotions. Bhajan sessions in the Prayer Hall are structured to invoke emotions, and amplify and diffuse them. As the tempo builds up with speed and drum beats, emotions increase in intensity and vibrations begin to be felt in different parts of the body. Each drum beat can crack innate blocks and obsessions, to make one more open on the inside. The vibrations then turn subtle and create resonances in the whole body. The dhuns and japa repeated in the mind create the same resonant waves throughout the body. Personally, I enjoy them very much. The silence in between bhajans and the final soothing endings, such as Nirvana Shatka or Shanti mantra diffuse emotions into the deep silence within. Understanding that silence and tranquility is bliss, It often brings an ecstasy of serene silence. Remembering these as a gift of God, and seeking his blessings to become a fitter instrument in His service, and to see Him or Her in every human being, in every part of the creation, helps us to serve man as God. Each act of service is for our own growth and purifies us to grow in Sadhana and manifest*

H. R. Nagendra, private communication

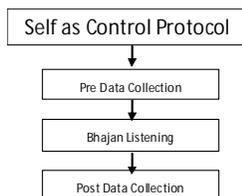


*divinity both within and without.”*

Clearly, bhajans not only affect the devotional life of the student, but have important roles to play in opening their hearts to a life spent more in service to humanity. question is, do they also have direct influence on body and mind that can benefit the health of the individual? Here we report a basic experiment showing that listening to bhajans (as opposed to actively singing them) can increase alertness in ways that improve sustained attention. The first author was motivated to carry out the study, because her experience as an active member of the Ananda Marga organization in Kolkata has been that singing and listening to bhajans calms the mind, and energizes the body for extended periods of time, and create an environment beneficial for meditation. She also observes that, as Nagendra says, they can induce a state of total surrender to God. Ananda Murthii observes that<sup>39</sup>, *‘It inspires the singers and listeners to shake off depression, melancholy and fatigue, and generates vitality in life. Novelty, excellence and uniqueness in its inner spirit, rhythm tempo and melody are the hallmarks of such song, blended to give wonderful supra-aesthetic effects to the human mind. With its strong sublime ideation and feeling of optimism in reaching one’s spiritual goal, Prabhata Sangita embody the inner truth of life.’*

## Methods

**Overall Study Design** – Proposed as a self-as-control study.



**Subjects** – Twenty-three SVYASA University student volunteers, 17 male, 6 female. However, 3 men failed to take post tests one of the days, so numbers were reduced to 20.

**Inclusion criteria** - Healthy students, male and female, aged 25-35 yrs

**Exclusion criteria**- Not healthy / Not interested.

**Protocol:** All subjects participated twice, on one occasion listening to bhajans, and on the other reading a book for the same length of time. The two interventions were carried out different orders, one group listening to bhajans first and the other reading a book first.

**Assessments**- Were carried out pre- and post- listening to the 30 min intervention periods using the Six Letter Cancellation Test (SLCT)<sup>41</sup> and Digit Letter Substitution Test (DLST)<sup>42</sup>. In the course of the study, subjects took both tests, stopwatch timed for 90 secs, four times.

SLCT. Subjects are seated with the worksheet and ‘coding

sheet’ designating six letters to be cancelled, the ‘target letters’, turned over until the test starts. They are given instructions telling them to cancel as many target letters as possible in the specified time of 90 seconds, along with a choice of cancellation strategy: to do so horizontally, vertically, or by selecting one target letter at a time. All queries are answered to ensure the test is understood. Subjects are then instructed to turn over the sheets and start the test as the bell rings.

**DLST:** the DLST follows the same procedure as the SLCT. Coding sheets with instructions, state letters to substitute for each digit 1 to 9, one coding applying to one test. Subjects are instructed to substitute as many target digits as possible.

**Ethical Clearance:** was obtained from the institution ethical committee.

**Data Extraction:** Scoring both DLST and SLCT includes total number of substitutions attempted, and number of wrong substitutions; net score equals the former minus the latter. Scoring was carried out by persons blinded to whether the assessment being scored was ‘before’ or ‘after’ the intervention.

**Data Analysis:** Analysis was done using Excel

## Results

Table 1 presents the analyzed data: pre and post SLCT scores for listening to bhajans were  $27.74 \pm 8.02$ , and  $35.30 \pm 8.28$  respectively, giving an unpaired  $t$  value of  $t = 3.18$ ,  $p = 0.002$ . Paired sample analysis gave increases of  $7.65 \pm 5.84$ , yielding ‘ $t$ ’ = 6.29,  $p < 0.0001$ . For reading, pre and post scores were  $29.61 \pm 10.17$ , and  $33.61 \pm 9.47$ , giving an unpaired  $t = 1.38$ ,  $p = 0.17$ , with the paired sample increase being  $4.00 \pm 6.39$ , yielding ‘ $t$ ’ = 3.00,  $p < 0.0066$ . Both listening to bhajans and book reading (controls) showed significant increases, with bhajans producing stronger effects: an independent sample ‘ $t$ ’ test between the paired sample means and SDs yielded  $t = 2.02$ , 2-tailed  $p = 0.0495$ , 1-tailed  $p = 0.025$ .

Corresponding scores for DLST were, for bhajans, pre,  $58.61 \pm 12.14$  improving to  $63.30 \pm 12.14$  post, unpaired  $t = 1.31$  ( $p = 0.197$ ), with paired sample increase of  $4.70 \pm 3.46$ , yielding ‘ $t$ ’ = 6.51,  $p < 0.0001$ . For reading, scores changed marginally from  $58.74 \pm 11.62$  pre, to  $60.57 \pm 11.94$  post, unpaired  $t = 0.53$  ( $p = 0.60$ ), with the paired sample increase being  $1.83 \pm 3.23$ , yielding ‘ $t$ ’ = 2.72,  $p = 0.0126$ . The independent sample ‘ $t$ ’ test between the paired sample means and SDs yielded  $t = 2.91$ ,  $p = 0.0057$ .

## Discussion and Conclusions

Both SLCT and DLST, paired sample  $t$  tests found that both listening to bhajans and book reading significantly improved test performance, listening to bhajans consistently producing greater effects,  $t = 2.02$ , 1-tailed  $p = 0.025$  for SLCT, and  $t = 2.91$ ,  $p = 0.0057$  for DLST.

Although the strength of these results may at first sight seem surprising, a recent quote from Mahendra Dhoni, Captain of India's cricket team, seems to confirm the observed effects<sup>42p</sup>: “*Singing helps me to stay focused. When the bowler is running in to bowl, I start to sing, but as soon as he gets to his delivery stride, I focus on the ball. Singing when the bowler is running in empties my mind of unwanted thoughts.*” Evidently, others also find the alerting effects of *Sangita* valuable.

Participating in singing and listening to Bhajans has not been previously assessed at SVYASA, apart from the general, overall influence of Yoga lifestyle programs. The success of this study suggests that suitable test should be identified for all aspects of the programs.

The strength of the study is its simplicity: significant results were obtained from only twenty subjects participating twice in a self-as-control study design. It was therefore easy to set up, easy to administer, and easy to score and analyze.

The limitations of the study are first that only one bhajan protocol was tested; second that subjects were not asked to estimate their familiarity with, or degree of enjoyment of, the bhajans selected; third that the tests were very similar to each other and measured very general aspects of sustained attention; and fourth that, consequently, little can be determined about the specifics of attentional processes that were improved.

The scope for future research emerging from this study seems tremendous, many kinds of devotional songs and sacred music can be tested; dependence on degree of subjective enjoyment could be assessed; and different aspects of attention improved by given kinds of *Sangita* / music could be investigated.

**Declaration of Competing Interests:** none of the authors have any interests to declare.

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**Table I : Results of Listening to Bhajans or Reading a Book on SLCT and DLST Scores**

TEST	BHAJAN	READING	Independent Samples t & p	't'	P
SLCT Pre	27.74 ± 8.02	29.61 ± 10.17			
Post	35.30 ± 8.28	33.61 ± 9.47			
't'	t = 3.18,	t = 1.38,			
p	p = 0.002	p = 0.17			
Paired Sample	7.65 ± 5.84	4.00 ± 6.39	t = 2.02 p = 0.025	Bh t = 6.29, Re t = 3.00,	p < 0.0001 p < 0.0066
DLST Pre	58.61 ± 12.14	58.74 ± 11.62			
Post	63.30 ± 12.14	60.57 ± 11.94			
't'	t = 1.31	t = 0.53			
p	p = 0.197	p = 0.60			
Paired Sample	4.70 ± 3.46	1.83 ± 3.23	t = 2.91, p=0.0057	Bh t = 6.51, Re t = 2.72,	p < 0.0001 p = 0.0126

**Table 1 Caption:** Results from 20 subjects tested on SLCT/DLST pre-post 30mins bhajans and book reading. Paired - ample means±SD's are below those for raw data. Only paired-sample 't' values reached statistical significance, Independent Samples t tests on them were SLCT: p=0.025; DLST: p=0.0057.